

AMENDMENTS TO THE CLAIMS

1. - 56. (Cancelled)

57. (Currently Amended) A method of identifying a molecule that binds to an Mrg polypeptide comprising the steps of:

1) contacting a host cell expressing an Mrg polypeptide with a test compound, the Mrg polypeptide comprising an amino acid sequence exhibiting at least 95% sequence identity to the amino acid sequence of SEQ ID NO: 16; and

2) determining binding of said test compound to said host cell.

58. (Original) The method of claim 57 wherein said test compound is labeled.

59. (Original) The method of claim 58 wherein said test compound is radioactively labeled.

60. (Original) The method of claim 57 wherein said host cell is a eukaryotic cell.

61. (Original) The method of claim 60 wherein said host cell is a COS cell.

62. - 65. (Cancelled)

66. (Currently Amended) A method for identifying an Mrg polypeptide agonist comprising the steps of:

1) contacting a host cell known to be capable of producing a second messenger responses and expressing an Mrg polypeptide with a potential agonist, the Mrg polypeptide comprising an amino acid sequence exhibiting at least 95% sequence identity to the amino acid sequence of SEQ ID NO: 16; and

2) measuring a second messenger response to identify whether said potential agonist is an agonist of said Mrg polypeptide.

67. (Original) The method of claim 66 wherein said host cell is a eukaryotic cell.

68. (Original) The method of claim 67 wherein said host cell is a hamster embryonic kidney (HEK) cell.

69. (Original) The method of claim 68 wherein said HEK cell expresses Ga15.

70. (Original) The method of claim 66 wherein measuring a second messenger response comprises measuring a change in intercellular calcium concentration.

71. (Original) The method of claim 70 wherein said change in intercellular calcium concentration is measured with FURA-2 calcium indicator dye.

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72. (Original) The method of claim 66 wherein measuring a second messenger response comprises measuring the flow of current across the membrane of the cell.

73. (Original) The method of claim 66 wherein the identified agonist is useful in treating impaired sensory perception in a mammal.

74. (Original) The method of claim 73 wherein said impaired sensory perception is pain.

75. (Currently Amended) A method for identifying an Mrg polypeptide antagonist comprising the steps of:

1) contacting a host cell known to be capable of producing a second messenger response and expressing an Mrg polypeptide with a known Mrg polypeptide agonist and a candidate antagonist, the Mrg polypeptide comprising an amino acid sequence exhibiting at least 95% sequence identity to the amino acid sequence of SEQ ID NO: 16; and

2) measuring a second messenger response to identify whether said candidate antagonist is an antagonist of said Mrg polypeptide.

76. (Original) The method of claim 75 wherein said host cell is a eukaryotic cell.

77. (Original) The method of claim 76 wherein said host cell is a hamster embryonic kidney (HEK) cell.

78. (Original) The method of claim 75 wherein said known Mrg polypeptide agonist is an RFamide peptide.

79. (Original) The method of claim 75 wherein said second messenger response is a change in intercellular calcium concentration.

80. (Original) The method of claim 75 wherein said second messenger response is a change in the flow of current across the membrane of the cell.

81. (Original) The method of claim 75 wherein the identified antagonist is useful in treating impaired sensory perception in a mammal.

82. - 86. (Cancelled)

87. (New) A method of identifying a compound that binds to an Mrg polypeptide comprising the steps of:

1) providing a host cell expressing a polypeptide comprising the amino acid sequence of SEQ ID NO: 16;

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- 2) contacting said host cell with a test compound; and
 - 3) determining whether said test compound binds to said polypeptide.
88. (New) The method of claim 87 wherein said test compound is labeled.
89. (New) The method of claim 88 wherein said test compound is radioactively labeled.
90. (New) The method of claim 87 wherein said host cell is a eukaryotic cell.
91. (New) The method of claim 91 wherein said eukaryotic cell is a COS cell.
92. (New) A test compound identified by the method of claim 87.
93. (New) The method of claim 57, wherein said Mrg polypeptide comprises the amino acid sequence of SEQ ID NO: 16.
94. (New) The method of claim 66, wherein said Mrg polypeptide comprises the amino acid sequence of SEQ ID NO: 16.
95. (New) The method of claim 75, wherein said Mrg polypeptide comprises the amino acid sequence of SEQ ID NO: 16.